preferably made of an elastomeric or resilient material such as a natural or synthetic rubber, and are held onto first and fourth branches by friction, adhesives, snap-fitting, or like means.

Means for preventing scratching of the arrow key surfaces are preferably included with second and third branches **54**, **56**, and preferably comprise rubber tips **72**, **74**, which are held onto second and third branches **54**, **56** respectively by friction, adhesives, or like means. Like pads **64**, **66**, tips **72**, **74** are preferably made of natural or synthetic rubber or other elastomeric material. The second embodiment **50** differs from the first embodiment **10** primarily in that the first, second, third, and fourth actuating means are slightly extended in length and are structured and configured to form narrow, elongated branches rather than wide flattened branches provided in the first embodiment **10** described above. Otherwise, the first and second embodiments of the invention operate in generally the same manner, with tilting, rocking, or otherwise directionally moving control rod **60** providing selective cursor movement or directional control. By moving or tilting control rod **60** forward, first branch **52** actuates UP arrow key **14**, and when control rod **60** is tilted or moved to the right, second branch **54** depresses and actuates RIGHT arrow key **16**. Movement of control rod **60** to the left causes third branch **56** to actuate LEFT arrow key **18**, and moving control rod **60** back towards the user causes fourth branch **58** to actuate DOWN arrow key **20**. As with the first embodiment apparatus **10**, moving control rod **60** back may cause second and third branches **54**, **56** to come into slight contact with RIGHT and LEFT arrow keys **16**, **18** respectively, but without actuating these arrow keys. FIG. **9** illustrates movement of control rod **60** forward for actuation of Up arrow key **14**.

The joystick converter apparatus **50** may be structured and configured for use with arrow key arrays in a standard cross-shaped configuration by simply extending fourth branch **58** out from control rod **60** in the same manner as first branch **52**, so that first, second, third, and fourth branches **52** through **58** are arranged in a cross-shaped arrangement corresponding to the standard cross-shaped arrow key array. Such an arrangement would operate in a fashion identical to that described above for the apparatus **50**.

Accordingly, it will be seen that the present invention provides a joystick converter apparatus which allows quick and accurate cursor movement and directional control by direct actuation of keyboard arrow keys. Although the description above contains many specificities, these should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of this invention. Thus, the scope of the invention should be determined by the appended claims and their legal equivalents.

I claim:

1. For use with a computer keyboard arrow key array having an UP arrow key, a LEFT arrow key, a DOWN arrow key and a RIGHT arrow key, a joystick converter apparatus comprising:

(a) a control rod;

(b) first, second, third, and fourth actuating means for depressing said arrow keys, said actuating means operatively coupled to said control rod;

(c) means for detachably coupling at least one of said actuating means to a corresponding arrow key; and

(d) a substantially flat T-shaped plate, said plate coupled to said control rod, said first actuating means comprising a first branch on said plate, said second actuating means comprising a second branch on said plate, said third actuating means comprising a third branch on said plate, said fourth actuating means comprising a junction region on said plate, said junction region located between said first, second and third branches.

2. An apparatus as recited in claim **1**, wherein said first branch of said T-shaped plate is structured and configured for positioning adjacent said UP arrow key, said second branch is structured and configured for positioning adjacent said RIGHT arrow key, said third branch is structured and configured for positioning adjacent said LEFT arrow key, and said junction region is structured and configured for positioning adjacent said DOWN arrow key.

3. An apparatus as recited in claim **2**, wherein said detachable coupling means is associated with said first branch and said junction region, said detachable coupling means is structured and configured to reversibly attach said first branch to said UP arrow key by said coupling means, and said detachable coupling means structured and configured to reversibly attach said junction region to said DOWN arrow key.

4. An apparatus as recited in claim **2**, wherein said second actuating means further comprises a downwardly disposed protuberance on a lower surface of said second branch, said third actuating means further comprises a downwardly disposed protuberance on a lower surface of said third branch, said protuberance on said second branch is structured and configured to be positioned above and spaced apart from said RIGHT arrow key, and said protuberance on said third branch is structured and configured to be positioned above and spaced apart from said LEFT arrow key.

5. An apparatus as recited in claim **3**, wherein said coupling means comprises a fastening hook and pile fabric fastener arrangement associated with a lower surface of said first branch and a lower surface of said junction region.

6. For use with a computer keyboard arrow key array with an UP arrow key, a LEFT arrow key, a DOWN arrow key and a RIGHT arrow key arranged in an inverted T-shaped layout, a joystick converter apparatus comprising:

(a) a control rod;

(b) a substantially flat T-shaped plate, said plate reversibly coupled to said control rod, said plate including a first branch, a second branch, and a third branch, said plate including a junction region, said junction region located between said first, second and third branches;

(c) means for detachably coupling said first branch to said UP arrow key; and

(d) means for detachably coupling said junction region to said DOWN arrow key.

7. An apparatus as recited in claim **6**, wherein said first branch of said T-shaped plate is structured and configured for positioning adjacent said UP arrow key, said second branch is structured and configured for positioning adjacent said RIGHT arrow key, said third branch is structured and configured for positioning adjacent said LEFT arrow key, and said junction region is structured and configured for positioning adjacent said DOWN arrow key.

8. An apparatus as recited in claim **7**, further comprising:

(a) a first downwardly disposed protuberance on a lower surface of said second branch, said first protuberance structured and configured to be positioned adjacent and spaced apart from said RIGHT arrow key; and

(b) a second downwardly disposed protuberance on a lower surface of said third branch, said second protuberance structured and configured to be positioned adjacent and spaced apart from said LEFT arrow key.

9. An apparatus as recited in claim **6**, wherein said detachable coupling means comprise fastening hook and pile fabric fasteners associated with said first branch and said junction region.

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